

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**Intelsat License LLC
Hagerstown, Maryland**

Satellite Earth Station

Prepared By:
COMSEARCH

19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
July 25, 2011

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1. CONCLUSIONS

An interference study considering all existing, proposed and prior coordinated microwave facilities within the coordination contours of the proposed earth station demonstrates that this site will operate satisfactorily with the common carrier microwave environment. Further, there will be no restrictions of its operation due to interference considerations.

2. SUMMARY OF RESULTS

A number of great circle interference cases were identified during the interference study of the proposed earth station. Each of the cases, which exceeded the interference objective on a line-of-sight basis, was profiled and the propagation losses estimated using NBS TN101 (Revised) techniques. The losses were found to be sufficient to reduce the signal levels to acceptable magnitudes in every case.

The following companies reported potential great circle interference conflicts that did not meet the objectives on a line-of-sight basis. When over-the-horizon losses are considered on the interfering paths, sufficient blockage exists to negate harmful interference from occurring with the proposed transmit-receive earth station.

Company

None

No carriers reported potential interference cases.

3. SUPPLEMENTAL SHOWING

Pursuant to Part 25.203(c) of the FCC Rules and Regulations, the satellite earth station proposed in this application was coordinated by Comsearch using computer techniques and in accordance with Part 25 of the FCC Rules and Regulations.

Expedited coordination data for this earth station was sent to the below listed carriers with a letter dated July 11, 2011. To further expedite the coordination Intelsat License LLC accepted any unresolved potential interference cases in the receive spectrum.

Company

ALLEGANY COLLEGE OF MARYLAND
ART Licensing Corp.
AT&T COMMUNICATIONS OF MARYLAND INC
AT&T COMMUNICATIONS OF VIRGINIA INC
AT&T CORP
Airband Communications Inc
Albermarle, County of, Virginia
Allegheny County
Allentown SMSA Limited Partnership
Alltel Communications LLC - Verizon SOVA
Alltel Communications of Petersburg Inc
Atlantic Broadband (Delmar), LLC
Atlantic Broadband (Penn), LLC
Auburn Data Systems, LLC
BALTIMORE CITY DEPARTMENT OF PUBLIC WORK
BAY BROADBAND COMMUNICATIONS LLC
Baltimore County of Maryland
Baltimore Gas and Electric Company
Bedford, County of
Believe Wireless, LLC
Berks, County of
Blaze Broadband
Blue Ridge Carriers
Bucks, County of
CAMDEN COUNTY
CHESTER, COUNTY OF
CROWN COMMUNICATION, INC.
Cambria, County of
Cape May County Municipal Utilities Auth
Cape May County, MIS Department
Cellco Partnership - Bridgeville, PA
Cellco Partnership - Southern Virginia
Cellco Partnership- PA Region
Cellco Partnership-Newark-Dallas Verizon
Cellco Prtnrshp - Phil. Tri-State Rgn

Company (Continued)

City of Laurel
City of Ocean City, MD
Clearwire Spectrum Holdings III, LLC
Clearwire Spectrum Holdings LLC
Commonwealth of Pennsylvania-Radio Proj.
Conterra Ultra Broadband, LLC
County of Stafford
Cumberland, County of
D&E Communications, Inc.
DAUPHIN COUNTY EMERGENCY MANAGEMENT
DELAWARE STATE - DTI
Eduro Networks LLC
Enoch Pratt Free Library
Exelon Generation Company, L.L.C
FELHC, Inc.
FiberTower Network Services Corp.
Fleet Systems, LLC
Franklin County Dept. of Emergency Servi
Frederick County
GEORGE MASON UNIVERSITY INSTR FNDTION
GETWIRELESS.NET
GRAY TELEVISION LICENSEE, LLC (KWTX-KBTX
Gannett Company, Inc.
Garden State Transmissions
Globecom Systems, Inc.
Greene, County of (PA)
HENRICO COUNTY
Hanover County Emergency Communications
Hardy Cellular Telephone Company
Harrisonburg-Rockingham ECC
Huntingdon County of
Jefferson Microwave, LLC
Juniata County Emergency Services
Kent County Levy Court
King George County
Kryptic Technologies
LANCASTER COUNTY OF
LOWER SHORE BROADBAND COOPERATIVE
LYCOMING COUNTY
Last Mile Inc.
Lehigh, County of
Loudoun County Public Schools
Loudoun Wireless LLC
Loudoun, County of
M&T Bank
MB Microwave, LLC
MCI Communications Services Inc.
METROPOLITAN AREA NETWORKS, INC.
MIT LINCOLN LABORATORY

Company (Continued)

Maryland Port Administration
Maryland Public Broadcasting Commission
Maryland State Highway Administration
Maryland, State of - Dept.of Info & Tech
Middle East Broadcasting Networks, Inc.
Mifflin County
Millersburg Area School District
Mobile Satellite Communications Inc
Montgomery, County of
NEW JERSEY STATE DEPT OF TRANSPORTATION
NEW JERSEY STATE POLICE
NOROC Broadband LLC
National Radio Astronomy Observatory
Netrepid, Inc.
New Cingular Wireless PCS - VA/DC/MD
New Cingular Wireless PCS LLC - AL, MS,
New Cingular Wireless PCS LLC - DC
New Cingular Wireless PCS of PA LLC
New Cingular Wireless PCS, LLC - PA
New Cingular Wireless PCS, LLC - WV/VA
New Jersey Turnpike Authority
New Jersey Turnpike Authority-Pkwy Div
New Jersey, State of -NJ Transit
Nextlink Wireless, Inc
Northern Virginia Electric Cooperative
Open Range Communications
PENNSYLVANIA MICROWAVE NETWORK INC.
PENNSYLVANIA TURNPIKE COMMISSION
Philly Sports Wireless
Pitt Power
Pittsburgh, City of (PA)
Pontis Communications, Inc.
Port Networks, LLC
Public Broadcasting Service
QUALCOMM INC.
RAYTHEON COMPANY
Radio One of Boston, Inc.
RapidDSL & Wireless, Inc.
Roadstar Internet, Inc.
Rural Broadband Network Services LLC
SCHUYLKILL, COUNTY OF
SCTF NET
SECOM NET
SOMERSET COUNTY
SOUTHEASTERN PENNSYLVANIA TRANSIT AUTH
Salem County Information Technology
Shenandoah Personal Communications Co
Somerset County, Maryland
State of Maryland, MIEMSS
State of WV DHHR/BPH STECS
Synergy Telecommunications Corp

Company (Continued)

THE HERSHEY COMPANY
Telecom Transport Management, Inc
UNION, COUNTY OF
UNIVERSITY OF MARYLAND
USCOC of Cumberland, Inc.
Verizon New Jersey, Inc.
Verizon Virginia, Inc.
Virginia Broadband, LLC
Virginia Electric & Power Company
WASHINGTON SUBURBAN SANITARY COMMISSION
WEST VIRGINIA RADIO CORPORATION
WHYY, INC.
WICOMICO BOARD OF EDUCATION
WPNT, Inc.
Warrenton Fauquier Joint Communications
Washington Gas Light Company
Western PA Internet Access, Inc.
York County Dept of Emergency Services

4. EARTH STATION COORDINATION DATA

This section presents the data pertinent to frequency coordination of the proposed earth station that was circulated to all carriers within its coordination contours.

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 <http://www.comsearch.com>

Date: 07/25/2011
Job Number: 110711COMSJC01

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code INTELS
Licensee Name Intelsat License LLC

Site Information HAGERSTOWN, MARYLAND

Venue Name
Latitude (NAD 83) 39° 35' 59.0" N
Longitude (NAD 83) 77° 45' 29.0" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 170.69 m / 560.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 20° W to 22° West Longitude
Azimuth Range 111.9° to 113.5°
Corresponding Elevation Angles 15.9° / 17.4°
Antenna Centerline (AGL) 3.05 m / 10.0 ft

Antenna Information

Manufacturer
Model
Gain / Diameter
3-dB / 15-dB Beamwidth

Receive

GD Satcom
4.8 Meter
53.5 dBi / 4.8 m
0.34° / 0.71°

Transmit

GD Satcom
4.8 Meter
55.2 dBi / 4.8 m
0.28° / 0.59°

Max Available RF Power (dBW/4 kHz)
(dBW/MHz)

-23.3
0.7

Maximum EIRP (dBW/4 kHz)
(dBW/MHz)

31.9
55.9

Interference Objectives: Long Term -156.0 dBW/MHz 20%
Short Term -146.0 dBW/MHz 0.01%

-151.0 dBW/4 kHz 20%
-128.0 dBW/4 kHz 0.0025%

Frequency Information

Emission / Frequency Range (MHz)

Receive 11.0 GHz

200KG7W / 10950.0 - 11200.0
1M41G7W / 10950.0 - 11200.0
200KG7W / 11450.0 - 12200.0
1M41G7W / 11450.0 - 12200.0

Transmit 14.0 GHz

3M79G7W / 14000.0 - 14500.0

Max Great Circle Coordination Distance
Precipitation Scatter Contour Radius

291.4 km / 181.1 mi
507.2 km / 315.1 mi

122.3 km / 76.0 mi
100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

19700 Janella Farm Boulevard, Ashburn, VA 20147
(703)726-5500 <http://www.comsearch.com>

Coordination Values

HAGERSTOWN, MD

Licensee Name	Intelsat License LLC		
Latitude (NAD 83)	39° 35' 59.0" N		
Longitude (NAD 83)	77° 45' 29.0" W		
Ground Elevation (AMSL)	170.69 m / 560.0 ft		
Antenna Centerline (AGL)	3.05 m / 10.0 ft		
Antenna Model	GD Satcom 4.8 Meter		
Antenna Mode	Receive 11.0 GHz	Transmit 14.0 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz 20%
Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz 0.0025%
Max Available RF Power	-23.3 (dBW/4 kHz)		

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.34	111.06	-10.00	217.77	-10.00	100.00
5	0.28	106.26	-10.00	223.86	-10.00	100.00
10	0.23	101.46	-10.00	228.33	-10.00	100.00
15	0.22	96.65	-10.00	229.60	-10.00	100.00
20	0.25	91.83	-10.00	226.36	-10.00	100.00
25	0.31	87.02	-10.00	220.64	-10.00	100.00
30	0.24	82.21	-10.00	227.92	-10.00	100.00
35	0.23	77.40	-10.00	228.71	-10.00	100.00
40	0.00	72.62	-10.00	231.37	-10.00	100.00
45	0.00	67.84	-10.00	231.37	-10.00	100.00
50	0.00	63.07	-10.00	231.37	-10.00	100.00
55	0.00	58.32	-10.00	231.37	-10.00	100.00
60	0.00	53.61	-10.00	231.37	-10.00	100.00
65	0.00	48.93	-10.00	231.37	-10.00	100.00
70	0.00	44.30	-9.16	235.08	-9.16	100.00
75	0.00	39.74	-7.98	240.43	-7.98	100.00
80	0.00	35.27	-6.69	246.62	-6.69	101.30
85	0.00	30.95	-5.27	253.48	-5.27	104.68
90	0.00	26.84	-3.72	261.22	-3.72	108.40
95	0.00	23.05	-2.07	269.76	-2.07	112.43
100	0.00	19.78	-0.40	278.68	-0.40	116.54
105	0.00	17.31	1.04	286.69	1.04	120.16
110	0.00	16.02	1.88	291.43	1.88	122.28
115	0.00	16.20	1.76	290.74	1.76	121.98
120	0.00	17.80	0.74	284.97	0.74	119.39
125	0.00	20.50	-0.79	276.57	-0.79	115.58
130	0.00	23.83	-2.43	267.88	-2.43	111.55
135	0.00	27.43	-3.95	260.03	-3.95	107.83
140	0.00	31.39	-5.42	252.74	-5.42	104.31
145	0.00	35.58	-6.78	246.17	-6.78	101.08
150	0.00	39.94	-8.04	240.17	-8.04	100.00
155	0.00	44.42	-9.19	234.95	-9.19	100.00
160	0.00	48.98	-10.00	231.37	-10.00	100.00
165	0.00	53.60	-10.00	231.37	-10.00	100.00
170	0.00	58.26	-10.00	231.37	-10.00	100.00
175	0.00	62.95	-10.00	231.37	-10.00	100.00
180	0.00	67.68	-10.00	231.37	-10.00	100.00
185	0.00	72.42	-10.00	231.37	-10.00	100.00

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Coordination Values

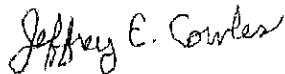
HAGERSTOWN, MD

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Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%	
Max Available RF Power			-23.3 (dBW/4 kHz)		

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	77.17	-10.00	231.37	-10.00	100.00
195	0.00	81.93	-10.00	231.37	-10.00	100.00
200	0.22	86.70	-10.00	229.24	-10.00	100.00
205	0.29	91.47	-10.00	222.64	-10.00	100.00
210	0.53	96.26	-10.00	203.13	-10.00	100.00
215	0.47	101.04	-10.00	207.18	-10.00	100.00
220	0.54	105.81	-10.00	204.97	-10.00	100.00
225	0.79	110.60	-10.00	192.33	-10.00	100.00
230	0.60	115.33	-10.00	202.05	-10.00	100.00
235	0.60	120.05	-10.00	202.04	-10.00	100.00
240	0.59	124.75	-10.00	202.42	-10.00	100.00
245	0.42	129.37	-10.00	211.34	-10.00	100.00
250	0.50	133.99	-10.00	204.60	-10.00	100.00
255	0.32	138.46	-10.00	220.14	-10.00	100.00
260	0.35	142.91	-10.00	216.79	-10.00	100.00
265	0.34	147.19	-10.00	218.03	-10.00	100.00
270	0.41	151.32	-10.00	212.06	-10.00	100.00
275	0.37	155.09	-10.00	215.60	-10.00	100.00
280	0.32	158.38	-10.00	220.05	-10.00	100.00
285	0.00	160.71	-10.00	231.37	-10.00	100.00
290	0.00	162.27	-10.00	231.37	-10.00	100.00
295	0.22	162.76	-10.00	229.36	-10.00	100.00
300	0.23	161.66	-10.00	228.67	-10.00	100.00
305	0.28	159.45	-10.00	223.82	-10.00	100.00
310	0.38	156.33	-10.00	214.58	-10.00	100.00
315	0.27	152.35	-10.00	224.79	-10.00	100.00
320	0.34	148.19	-10.00	218.21	-10.00	100.00
325	0.33	143.80	-10.00	219.13	-10.00	100.00
330	0.00	139.19	-10.00	231.37	-10.00	100.00
335	0.25	134.68	-10.00	226.57	-10.00	100.00
340	0.40	130.06	-10.00	212.82	-10.00	100.00
345	0.36	125.35	-10.00	216.07	-10.00	100.00
350	0.33	120.60	-10.00	219.45	-10.00	100.00
355	0.28	115.84	-10.00	223.67	-10.00	100.00

5. CERTIFICATION

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE FREQUENCY COORDINATION DATA CONTAINED IN THIS APPLICATION, THAT I AM FAMILIAR WITH PARTS 101 AND 25 OF THE FCC RULES AND REGULATIONS, THAT I HAVE EITHER PREPARED OR REVIEWED THE FREQUENCY COORDINATION DATA SUBMITTED WITH THIS APPLICATION, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



Jeffrey E. Cowles
Engineer III, Telecommunications
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Va. 20147

DATED: July 25, 2011